

CAREER FOCUS

A Career in Military Anaesthesia

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History

The first use of anaesthesia on the battlefield is credited to Baron Larrey (1766-1841) who used ice to block sensory conduction to perform painless amputations on the battlefield of Preuss Eylan in 1807. However, it was not until after William Morton (1819-1868) invented and revealed anaesthesia in October 1846 that the news and practice of anaesthesia rapidly encircled the globe (1). Prior to this it was accepted in both military and civilian practice that pain was a necessary accompaniment to any surgical operation. Sailors traditionally were offered a strong tot of rum but soldiers were only given a bullet on which to bite (2).

The first recorded anaesthetic and demonstration in the Services was by a naval medical officer, Assistant Surgeon T Spencer Wells RN, (later to join the Army for service in the Crimea) in Malta at the Royal Naval Hospital in Bighi. He sent for a Hooper's inhaler¹ [Figure 1] from London and used this for a dental extraction under ether and demonstrated the inhaler at the Malta Medical Society meeting on 6 March 1847(3). By June 1847 he had a series of more than a hundred anaesthetics which was probably the first series of anaesthetics to be published (4). Military doctors were slower to record their experience with anaesthesia. The first anaesthetic known to have been given to a wounded British soldier was by Dr. William Atherstone, the civil surgeon at Grahamstown in the Kaffir Wars of 1847 who performed an amputation under ether in the presence of Surgeon Irwin of the 27th Regiment of Foot (5).

Chloroform, which had been introduced by Professor James Y Simpson in Edinburgh in 1847, might have been thought to be the better anaesthetic agent for military service in that it did not require complex and fragile equipment for its delivery, it was non-inflammable and smaller quantities were needed. However, no records exist of its use on campaign service until 1851 when Assistant Surgeon William McEgan of the Indian Medical Service described the use of chloroform in 18 amputations, all but three surviving, after a battle between the 2nd Nizam's Cavalry and Appa Sahib in the Deccan. Chloroform was used extensively in the Crimean War despite a heavily criticised caution against its use in severe shock by the Principal Medical Officer, Inspector General John Hall. However, by the end of the Crimean War, general anaesthesia had become and remains an accepted part of military medical practice.

Military anaesthetics continued to be given by medical officers and others generally as was the customary civilian practice for many years. However in the early part of the 20th century, officers specialising in anaesthesia started to appear. The distribution list of Officers of the Army Medical Staff and RAMC for the early 1900s(6) records the appointments of a number of medical officers as anaesthetists. An early contributor to the then new Journal of the Royal Army Medical Corps, Captain JWH Houghton RAMC, wrote a number of papers on the use of spinal anaesthesia at the Queen Alexandra's Military Hospital, Millbank (7, 8), in Sierra

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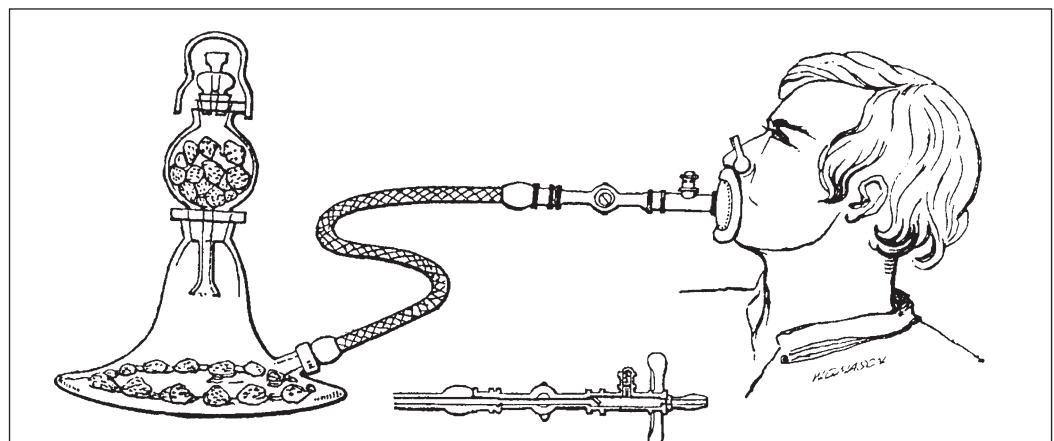


Fig. 1 Diagram of Mr Hooper's Ether Inhaler, Reproduced from *The Lancet* 1847;1:77.

The apparatus which was to the design of Drs Boott and Robinson was made by Messrs. Hooper's of Pall Mall.

Leone (9, 10) and the Cambridge Military Hospital, Aldershot (11).

Major advances in military anaesthesia and resuscitation were made directly as a result of the First World War and applied to civilian practice. The current Boyle's apparatus (12) and a more physiological basis for resuscitation with intravenous fluids (Captain G Marshall RAMC(T), later Sir Geoffrey) originate from that time. At the start of the Second World War, there were only five regular officers with the Diploma of Anaesthetics of whom only two were practising anaesthesia (13). It was decided by the War Office that only anaesthetists on the staff of any London or big provincial Hospital recognised by the University of Cambridge for training medical students and those holding the Diploma in Anaesthetics should be specialists and granted the rank of Major (or other service equivalent). The appointment of civilian consultants and military advisers in anaesthesia helped to upgrade the equipment and standing of the specialty (14) and even greater advances were made during the Second World War and a number of war time anaesthetists returned to civil life as full-time anaesthetists which the advent of the National Health Service made possible.

Anaesthesia as a Career

It is anaesthesia that has made possible the tremendous progress in surgery and intensive care over the last fifty years and a career in military anaesthesia can now span many fields. Anaesthetists, alone of other doctors, not only prescribe drugs, but administer them and observe their effect. Together with their rôle in resuscitation, preoperative preparation and postoperative stabilisation and pain relief, they may be seen to be both applied physiologists and pharmacologists.

Anaesthesia is essentially a 'hands-on' subject. Practical skills are important in undertaking many procedures in both the operating theatre and the intensive care unit so the anaesthetist must develop his skills to cannulate arteries, veins, and the trachea. He must be able to undertake regional, spinal and epidural nerve blocks as well as administer general and other anaesthetics. This requires an extensive knowledge of anatomy, physiology and pharmacology as well as technical proficiency.

Senior House Officer Training

Specialist anaesthetic training in the Army starts by applying to the RAMC Postgraduate Council for approval to train in anaesthesia. Any medical officer considering a career in anaesthesia should

make an appointment to see the Defence Consultant Adviser in Anaesthesia and Resuscitation² for an interview and to obtain the application forms. Advice can be given taking into account personal circumstances and aspirations. If the Council approves the application, the Army Medical Services, Manning and Career Management Division will consider the manning priorities and will issue a posting order for a Senior House Officer appointment in anaesthesia at one of the Ministry of Defence Hospital Units (MDHU) (currently Derriford, Frimley Park, Peterborough or Portsmouth/Haslar). In the case of former medical cadets, medical officers are usually released for specialist training after two years of general medical duties following the completion of the Postgraduate Medical Officers course.

The new Senior House Officer (SHO) will spend the first few months being fully supervised by a consultant anaesthetist in the operating theatre and on the wards whilst he learns the basic techniques for assessing patients, general and local anaesthesia, pain relief and resuscitation. Learning is rapid and as soon as a SHO become sufficiently confident and competent, a decision will be made to allow him to start undertaking carefully supervised on-call duties. Senior House Officer training in anaesthesia takes a minimum of two years in Royal College of Anaesthetists approved appointments and, either as part of the SHO training or additional to it, it is necessary to have undertaken a three-month training attachment in intensive care medicine. There should be some exposure to a number of different sub-specialty aspects of anaesthesia during the Senior House Officer training. In particular, there should be three months' exposure to obstetric anaesthesia in the second year and some paediatric anaesthesia. Audit of one's own and the hospital's performance starts to become a way of life and all trainees keep a log book of all the anaesthetics that they have given and they also take part in audit meetings. This gives an objective basis for the regular reviews to structure training around experience and performance.

Anaesthesia was the first specialty to develop day-release vocational training and courses to help in achieving success in the Primary Examination for the Diploma of Fellow of the Royal College of Anaesthetists. Such training courses have been responsible for the improving pass rates seen in the anaesthetic examinations rather than any drop in standards. Most military Senior House Officers attend both a local day-release course and the three-week full-time

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course run by the Royal College of Anaesthetists, in addition to in-hospital training. They also attend Advanced Life Support courses (ALS), Advanced Trauma Life Support courses (ATLS) and Paediatric Life Support courses (PALS) during this time. Simulators are starting to play a more significant rôle in training and enable expertise to be gained in the handling of rare but life-threatening emergencies. There is a flourishing Association of Anaesthetists of Great Britain and Ireland which runs a very popular annual meeting for the Group of Anaesthetists in Training where life-long links can be forged with other anaesthetists in training whilst absorbing knowledge in a congenial atmosphere.

The Primary Examination of the Royal College of Anaesthetists (15) may be taken after the first twelve months of an approved anaesthetic appointment (16) although many take it after eighteen months of anaesthesia training. It consists of a multiple choice paper and an essay paper which are taken first. If these are passed, the candidate returns for a viva voce and an objectively structured clinical examination (OSCE); success in all parts is required to pass. The Primary FRCA, two years' approved SHO anaesthetic training and a three-month block³ of intensive care medicine training are required to advance to the next stage of training as a specialist registrar (SpR).

Specialist Registrar Training

It is uncommon in the National Health Service for SHOs to proceed immediately to a SpR appointment and most will use the third year as a SHO to widen their experience of medicine generally. This is also a time when career decisions have to be made as many medical officers will be coming towards the end of their short service commissions.

All applicants for specialist registrar training in the Army are required to agree to a return of service of five years, less any time spent in general medical duties, following completion of SpR training before they will be issued with a Service National Training Number.⁴ Candidates for a SpR appointment are required to attend a N.H.S. appointments board to demonstrate that they have satisfied the entry criteria for the grade. Service candidates are not in competition with civilians for appointment but they are required to meet the personal specification for entry into higher professional training (17). This Board is usually arranged in the region where the candidate wishes to undertake the first two years of SpR training. The Service SpR is

funded by the Defence Medical Services and his training is supervised by the Dean of the Royal Defence Medical College and the Defence Adviser in Anaesthesia and Resuscitation. Usually an advantageous training programme can be negotiated for the first two years of specialist registrar training at a good academic centre.

At present, there are Defence Medical Services SpRs training in Bristol, Wessex, London, Oxford, Leicester, Leeds, and Edinburgh. The training is modular with all the major areas of anaesthesia being covered in preparation for the examination of Diploma of Fellow of the Royal College of Anaesthetists (FRCA). Modules usually include anaesthesia for cardiac and thoracic surgery, intensive care medicine, neurosurgery, obstetrics and gynaecology, ophthalmology, orthopaedics, otorhinolaryngology, paediatric surgery, plastic surgery and burns, and urology. Every year during specialist registrar training a formal recorded in-training assessment (RITA) is held by a Board with representation from the Postgraduate Dean and the Regional Educational Adviser amongst others. The log book and progress reports from training consultants are examined and suggestions for further training made. Thirty months of approved anaesthetic training must be completed before being eligible to sit the examination. Like the Primary examination, it has both an initial multiple-choice paper and an essay paper which must be passed before being invited to appear for the viva voce and clinical examinations. Success brings the right to the use of the postnominal letters FRCA and is also a prerequisite to being allowed to start the third year as a specialist registrar.

Service SpRs normally spend their third year at an MDHU. During this time more emphasis is put on learning about health service administration and teaching. The Royal College of Anaesthetists approves a military anaesthetic module for a period up to three months which can be spent on operational duty where it is supervised and is part of a pre-planned training programme. The final two years of specialist registrar training is spent in making up for any deficiencies in earlier training and developing a subspecialty interest. The Services have a particular need for anaesthetists to specialise in intensive care medicine, hyperbaric medicine and in the transportation of casualties. There are potential training opportunities available to service SpR in these subspecialties.

Where essential training for a military anaesthetist can only be obtained overseas up to one year may be recognised, with

³Ideally this should be a three month block but the Board will accept minimum blocks of four weeks. The blocks must be full time in intensive care medicine, not just on call or daytime responsibilities only. ⁴Currently the time bar is three years from CCST but is likely to change to that stated in April 2000.

prior approval, towards SpR training in anaesthesia or up to six months towards advanced training in intensive care medicine.

It is not a requirement that intensivists are trained as anaesthetists although in the N.H.S. 90% of all intensivists are anaesthetists. For anaesthetists wishing to specialise in intensive care medicine at intermediate level, it is necessary to do at least six months in an approved medical appointment⁵ and a six month intensive care medicine training block as a specialist registrar in an approved training unit (18). For advanced training a further 12 months intensive care medicine in approved units is required.⁶ The Intercollegiate Board for Training in Intensive Care Medicine hopes that full-time intensivists and those who desire to be Directors of Intensive Care will have advanced level training (with a CCST in Intensive Care medicine as well as a CCST from their parent specialty⁷ and the Diploma in Intensive Care Medicine. This Diploma examination requires a dissertation, an oral examination on the dissertation, an oral examination on cases in the log book and a structured oral examination (19).

After the satisfactory completion of the five-year specialist registrar training programme the Royal College of Anaesthetists will recommend to the Specialist Training Authority the award of a Certificate of Completion of Specialist Training (CCST), which permits entry on the Specialist Register held by the General Medical Council. The end of training and the appointment as a consultant is signified by the approval of the Armed Services Consultant Advisory Board following an interview to determine that the service candidate is up to the standard of a civilian consultant anaesthetist.

Life as a Consultant

The Army has or will have consultant appointments at the Centre of Defence Medicine, the Ministry of Defence Hospital Units at Derriford, Portsmouth, Frimley Park, Peterborough and Northallerton, the Field Hospital cadres and with the Field Surgical Teams attached to the Medical Regiments. Those consultant anaesthetists attached to field units spend the majority of their time attached to suitable hospitals to maintain their anaesthetic skills. Typically, half the week will be spent anaesthetising in the operating theatre and the other half in non-fixed duties including military duties, teaching, administration and on-call. Some anaesthetists work in pain relief, others in obstetric anaesthesia or cardiothoracic

anaesthesia and intensive care. The anaesthetists attached to 16 Close Support Medical Regiment need to be parachute trained.

All consultant anaesthetists can expect to spend on average one month on operational duty each year honing their military anaesthetic skills. Exercises also take anaesthetists out of the hospital into the field and enable them to train their staff on field equipment and to practise the treatment protocols. Field anaesthetic equipment scales are currently being updated and the latest ventilators and physiological monitoring equipment should be available operationally. In addition new containerised operating theatres and recovery/intensive care facilities (MTSF) are being purchased for operational use.

In the MDHUs service anaesthetists work alongside their civilian colleagues, although the MDHU contract specifically provides that service anaesthetists are not funded to work on a full-time basis for the Trust to allow for military commitments. It is expected that there should be opportunities to develop the subspecialty interests learnt during SpR training.

Most military consultants will take a very active part in the training of anaesthetists and each MDHU has a military training coordinator or a clinical tutor. A number of consultant anaesthetists have, or are reading for, the Diploma or Certificate in Medical Education whilst others prepare to defend MD theses based on their research. Others are actively gaining other higher degrees or diplomas.

Later on, some consultants take a more active part in management of the specialty through the local school of anaesthesia for the region and the Royal College of Anaesthetists or in the administration of the MDHU, either on committees or as the commander.

All in all, anaesthesia can lead to a very varied and satisfying career with plenty of practical application and patient contact. Team work enables a high standard of service whilst allowing for a reasonably predictable quality of life.

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⁵This must entail being on call for acute, unselected medical admissions. Appointment must be approved by the Royal College of Physicians.
⁶Blocks must be a minimum of three months dedicated to intensive care. Up to nine months may be taken in specialised intensive care units.
⁷Dual CCST only applies to specialist registrars who can fulfil the Intercollegiate Board for Training in Intensive Care Medicine's criteria prospectively after 7 June 1999.

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